



Reducing Waste, Building Business

Annual Report 2003-2004 to the Indiana General Assembly





Message from Commerce Director,
Lieutenant Governor Kathy Davis

Members of the General Assembly:

As we work toward a bright future for all Hoosiers, we look to businesses and communities to lead by example. An increasing number of companies and communities are recycling and reducing waste to keep them competitive and efficient. These efforts create new technologies and resource efficiency practices, as well as creating quality jobs.

The Indiana Department of Commerce's Recycling Market Development Program, administered through the Energy and Recycling Office, has been assisting in these efforts and aiding Indiana's recycling industry for over a decade. Through its financial and technical assistance, the program has helped ensure that *Recycling is Working* in Indiana for businesses and communities across the state.

The recycling industry employs over 75,000 people at 1,700 businesses throughout Indiana. Among these are businesses that make landscaping lumber from recycled plastic, floor mats from recycled rubber, mulch from discarded pallets, and new electronics from used components. The Indiana Department of Commerce is committed to supporting Indiana companies that use recyclables in manufacturing and reduce waste. Commerce is also committed to bringing recycled content products made by Indiana companies to consumers.

The Indiana Department of Commerce's Recycling Market Development Program offers loans, grants, and assistance to Indiana businesses and communities to increase recycling and waste reduction. A total of \$1.2million for 20 projects was approved by the program in fiscal year 2003. These projects will leverage over \$10 million, divert approximately 34,675 tons of material from disposal, create 70 new jobs and save energy. The projects will serve as models of efficiency for other industries and communities for years to come.

Your continued support of these important programs is appreciated. Together, we can build a stronger economy and provide a more sustainable environment for all Hoosiers.

Sincerely,

A handwritten signature in cursive script that reads "Katherine L. Davis".

Kathy Davis
Lieutenant Governor

Executive Summary

Recycling is working in Indiana. The recycling and reuse industry in Indiana contributes significantly to waste reduction, job creation and revenue generation in the state, in addition to decreasing energy consumption, greenhouse gas (GHG) emissions and the amount of waste going to landfills. The Indiana Department of Commerce's Energy and Recycling Office works to support and expand this industry through financial and technical assistance in order to help Indiana achieve its 50 percent waste-reduction goal and to build Indiana's economy.

Between 1990 and 2002, Indiana's population grew from 5,544,159 to an estimated 6,160,000 (Source: U.S. Census Data). Indiana reduced the amount of material going to landfills by approximately 39 percent during that same period (Source: Indiana Department of Environmental Management). While great strides have been made recently, we must work hard to ensure that Hoosier communities and businesses continue to make recycling a priority. Certain waste streams, including electronics, mixed glass and scrap tires, continue to offer challenges to both collection and market development, and require focused efforts to assure that the State moves forward on reducing the volume of these wastes in landfills. The Energy and Recycling Office is committed to reducing waste while encouraging the success of recycling businesses and recycled-content manufacturers in Indiana.

The Indiana Department of Commerce encourages Indiana businesses to reduce waste, increase recycling, and manufacture and use recycled-content products and industrial feedstocks. The Energy and Recycling Office helps businesses meet these goals by offering loans, grants and technical assistance, always working toward its mission "to promote the efficient, economic and environmentally responsible use of energy and natural resources."

Recycling and waste reduction saves energy in the manufacturing process and in the extraction of natural resources as well as reduces GHG and other emissions produced in the extraction, manufacturing and disposal stages. New tools have been developed that allow solid waste officials to more clearly calculate these benefits. National and state-specific studies also prove that recycling is doing much more than conserving natural resources. Recycling creates jobs, encourages investment and creates revenue for the state. The industry is an important and significant part of Indiana's economy, representing 1,700 establishments that employ approximately 75,000 people in Indiana, with annual revenues of \$19 billion and payroll of approximately \$3 billion (Source: Recycling Economic Information Study, 2001, based on 1999 figures). The recycling and reuse industries involve the collection, processing, remanufacturing and sale of many materials such as paper, metals, plastics, computers, electronics and other industrial and consumer scrap. An increasing number of other industries have undertaken efforts to include recycled or scrap materials into their manufacturing feedstocks. The recycled products manufacturing sector is particularly strong in Indiana.

To assist Indiana in supporting and expanding this important sector of the economy, the Energy and Recycling Office has a number of tools available, and has provided loan and grant funding for hundreds of Indiana businesses and communities. Expanded financial assistance programs, launched in fiscal year 2000-2001, have allowed more businesses and local governments around the state to receive financial help for increasing recycling activities and purchasing recycled-content products, thus diverting thousands more tons of material from Indiana landfills. Technical assistance tools, including the Recycled Product Showroom, Market Directory for Recyclables and the Materials Available

Database, are available as user-friendly databases on the Commerce Recycles website: **www.CommerceRecycles.in.gov**. The 2003 fiscal year brought a reorganization of the Indiana Department of Commerce, including the creation of 12 regional district offices. The reorganized structure has allowed the Energy and Recycling Office to more effectively reach out to potential customers and ensure that these tools become available to more Hoosiers.

A team of Commerce staff and external advisors gives all requests for financial assistance thorough technical, financial and business plan review. Applicants that meet all program criteria are presented to the Recycling and Energy Development Board for a funding decision (IC 4-23-5.5). Many high-quality applications were reviewed in fiscal year (FY) 2003-2004, and the Recycling and Energy Development Board approved three projects in FY 2003-2004 for loans totaling \$1,035,330, leveraging \$10,586,250 in private investment. These projects will divert approximately 34,675 tons of material from disposal, create 70 new jobs and save energy. Also in FY 2003-2004, 18 grant projects were approved totaling \$207,344.

A statewide Electronics Scrap Action Program (ESAP) was launched in FY 2003, sponsored by the Indiana Recycling Coalition and funded in part by the Indiana Department of Environmental Management. Commerce took a lead role in this effort, which brought public, private and non-profit entities together for a series of stakeholder meetings in order to find unique ways to create a sustainable and environmentally friendly electronics scrap management infrastructure in Indiana. The Indiana Recycling Coalition will host workshops and provide a “toolkit” for communities and businesses to recycle this priority material. Commerce will sponsor and provide advice on these projects.

The Energy and Recycling Office continues to expand its base of partner organizations involved in encouraging waste reduction. This coming year will bring the continued promotion of financial and technical assistance, along with the improvement of the Office’s successful programs.

Introduction

The Indiana Department of Commerce seeks to develop Indiana's economy through the support of new and existing businesses. The mission of Commerce's Energy and Recycling Office is to "promote the efficient, economic and environmentally responsible use of energy and natural resources." The Office's efforts include assisting the state in reducing the amount of material incinerated and disposed in Indiana landfills, as well as developing and promoting markets for recyclable items (IC 4-4-3-8). The Recycling Promotion and Assistance Fund (RPAF) grants and loans programs have provided the necessary financial assistance to help recycling entrepreneurs make a difference for the people of Indiana. The programs are funded by half of the \$0.50 per ton Solid Waste Management Fee established by IC 13-20-22.

Programs that increase waste diversion have been implemented successfully through national, state and local efforts. Indiana has achieved a 39 percent waste diversion rate between 1990 and 2002 (Source: Indiana Department of Environmental Management). This level of waste reduction is similar to many states across the nation. Indiana has moved forward significantly since 1990, when its waste reduction programs began, and the State continues to develop and implement programs that help us increase waste diversion while addressing the needs of businesses and communities in these changing times. Business efforts to reduce waste and make recycled-content products assist Indiana in saving landfill space and also boost the business environment by saving energy, building jobs and reducing reliance on virgin materials. Recycling means business in Indiana.

This report discusses Commerce's strategy for increasing markets for recyclables, defines priority materials for market development, provides an overview of activities during the past year, discusses the current markets for Indiana recyclables and addresses the economic and environmental impact of recycling, as well as recent developments related to recycling in Indiana.

If you would like to receive only an electronic copy of next year's annual report, please send an e-mail to Matt Waldo in the Energy and Recycling Office at mwaldo@commerce.in.gov

Strategy for Waste Reduction and Market Development

The Indiana Department of Commerce's Energy and Recycling Office (ERO) is challenging Indiana businesses to reduce waste, increase reuse and recycling, and use and manufacture recycled-content products and industrial feedstocks. To support and encourage these efforts, the Office provides technical and financial assistance to businesses and communities throughout the state.

Commerce is operating with a new, more community-oriented structure. In addition to internal efficiency improvements, 12 regional offices were opened to help better serve communities around the state. The Recycling Promotion and Assistance Fund (RPAF) grant and loan program saw an increase in applications to the program, and many exciting projects were funded. As a result of these projects, companies will be creating new recycled-content products and investigating new ways to use recycled materials and reduce waste. Communities will be able to purchase recycled products for use in local construction, beautification and education projects. The program continues to seek new marketing opportunities and new ways to integrate recycling projects with other Commerce programs. Updated technical assistance tools cater to those seeking markets for recyclables, recycled products or available recyclable material supply. Also this year, Commerce completed work on other exciting programs, including the Indiana Electronics Scrap Action Program, an effort to bring stakeholders together to find solutions to manage electronics scrap in the state.

In the coming year, we will build on these successes by promoting our programs, expanding business participation, maintaining our technical assistance tools, participating in statewide efforts to promote recycling and waste reduction, and continuing to adjust our efforts to effectively build markets for recyclables in Indiana. In the coming year, Commerce will expand the positive impact of the RPAF programs by:

- Aggressively seeking new program applicants through newsletter articles, conferences, mailings, phone calls and other means of communicating the availability of funds
- Providing prospective applicants with detailed assistance in preparation of the best possible applications;
- Developing new and expanded partnerships with other agencies, organizations and the private sector to move large quantities of priority recycled materials out of the waste stream;
- Assisting Indiana recycling entrepreneurs with business, investment and marketing guidance;
- Promoting the impact of the recycling and reuse industry to citizens, economic development officials, the investment community and decision-makers to expand their support of this economic sector;
- Working with Commerce regional offices to develop projects and conduct outreach;
- Continue to focus on electronics scrap as a priority material by working with stakeholders across the state to improve Indiana's electronics scrap management infrastructure;
- Work to strengthen Indiana's recyclable materials markets through workshops and dialogue; and
- Continue to improve the content and accessibility of the Web tools available through the Recycling Program.

Financial Assistance Tools

ERO's financial assistance programs now allow businesses more flexibility when applying for project support than was available several years ago. The "Financial Assistance" section later in this report provides details about the successes this program has had over the past three years it has been in place.

The financial assistance program was expanded in 2000 to include both loans and grants, and to allow businesses more flexibility in funding opportunities. This expanded program has been a success, and Commerce continues to examine ways to improve it to best serve its customers.

The Recycling Promotion and Assistance Fund, established by IC 4-23-5.5-14, offers a variety of grants and loans to encourage companies to find ways to reduce waste and increase recycling. This program is designed to provide funding assistance for all stages of recycling that bring secondary materials past collection and into the marketplace.

- Projects to reduce waste or increase the manufacturing of recycled-content products or industrial feedstock can receive assistance through zero-percent interest loans of up to \$500,000 as 50 percent matching funds for equipment purchases once the product or feedstock is ready for commercialization. Successful expanding companies using high-priority materials are eligible for increased funding levels of up to \$1 million as 50 percent matching funds, which is an incentive for successful companies to choose Indiana for their expansion sites.
- Grants of up to \$100,000 as 50 percent matching funds for research and demonstration projects can assist in testing a new product or process that allows a company to reduce its waste or create a recycled feedstock or product. These grants help assure companies that newly developed processes will succeed when fully implemented.
- Indiana manufacturers can receive grant funding of up to \$30,000 as 50 percent matching funds to assist in marketing their recycled-content products, and local governments can receive grant funding of up to \$5,000 as 50 percent matching funds to purchase these products for trial or demonstration projects. Products purchased this way are educational tools to be shared within the government agency as well as with the public. These assistance tools are designed to help create successful markets for recyclables in Indiana by bringing recycled materials into the marketplace.
- Grants of up to \$6,000 as 50 percent matching funds are available to assist companies in analyzing their waste streams and finding potential ways to reduce waste or increase recycling.

The Energy and Recycling Office's expanded financial tools have taken hold over the past four years, and this year showed the continued completion of successful projects funded through this program. The number of applicants to this program continues to increase, and the program continues to see a rise in companies willing to make investments in new technologies and the development of new products. In some cases, Commerce funding has encouraged these entities to use recycled products where budget restrictions may not have allowed them to purchase even their virgin counterparts. This investment in and education about recycled products in the state continues to expand the markets for these products,

thus supporting the businesses that create these products and the collection programs that supply material to these companies.

These financial tools will continue to be used to fund innovative and high-quality projects and will be adjusted when necessary to fit the needs of customers.

Comprehensive Online Tools

The website of the Recycling Program – www.CommerceRecycles.in.gov – continues to be updated and expanded to better serve our customers and make technical and financial information more accessible and easier to use:

- An important tool of the technical assistance program, the **Recyclable Material Market Directory**, is now updated and exclusively available in a searchable format on the website. This directory locates markets for Indiana’s recyclables and contains listings for more than 250 brokers, processors and end users. Markets for recyclables can be found on this database via a material search combined with a regional search.
- Commerce has also updated and improved a resource for finding recycled-content product vendors, the **Recycled Product Showroom**. This is a showcase of recycled-content products manufactured or distributed in Indiana.
- The **Materials Available Directory** can be a resource for companies seeking feedstock from other companies’ scrap material. Companies may list their available materials on this database or search the database for material by accessing the website. Commerce is working to expand this database so that it can be useful for those seeking material supply.
- The newest addition to the website is the **Recycling Business Assistance Guide**, which is a comprehensive guide to starting and growing a recycling business in Indiana. The guide includes information on financial, technical, and small business startup assistance.

In addition to these tools, the website of the Recycling Program offers downloadable information about the financial assistance program as well as downloadable publications such as the Annual Report, the Buy Recycled Indiana Guide and the Indiana Recycling Economic Information Study and accompanying fact sheet. The site also lists press releases and upcoming events related to the Recycling Program.

These resources will be expanded and promoted in the coming year to increase their effectiveness. Final reports, pictures and success stories, national websites, new online tools and relevant news will continue to be added to the website in the coming year. This information will serve to facilitate technology transfer and public education about reducing waste, recycling and buying recycled. Please visit www.CommerceRecycles.in.gov to use these valuable resources.

Focus on Electronic Scrap Management

Proper, environmentally friendly management of electronics scrap, or “e-scrap,” has become an issue of major importance both nationally and here in Indiana. Indiana is expected to have approximately 6 million computers by 2005, which will eventually end up as electronic scrap. The Indiana Department of Commerce lists electronic scrap as a priority reusable and recyclable material, and recognizes the importance of finding ways to divert electronic waste from landfills. E-scrap may consist of both solid

waste material such as glass, plastic and metal, as well as hazardous materials such as lead. Businesses may not only be concerned about generation and management of e-scrap, but may be interested in the business opportunities that arise from collecting, reselling or recycling the material. Proper management of these materials, as well as utilization of reuse opportunities, ensures that electronics do not harm the environment, but instead create opportunities and business activity for Hoosiers.

This year, Commerce completed participation in a statewide effort to bring together key stakeholders in the public, private and not-for-profit sector to propose solutions to e-scrap management in Indiana. This effort, supported by Commerce, the Indiana Department of Environmental Management, the Indiana Recycling Coalition, the United States Environmental Protection Agency (U.S. EPA) Region 5 in Chicago and several other public, private and not-for-profit entities, is an effort to define and grow the state's e-scrap management infrastructure in order to minimize the negative environmental impact of e-scrap on the state.

The stakeholder meetings involved support by 90 entities. The Indiana Recycling Coalition plans to move forward with several of the projects recommended by the e-scrap workgroup. These projects may include:

- Production of an information toolkit
- A series of workshops across the Indiana
- Pursuing funding for a statewide education campaign
- Developing a partnership with the Department of Corrections to recycle scrap electronics
- Discussing with policymakers a statewide ban on cathode ray tubes from landfills
- Supporting an advanced recovery fee on electronic purchases to fund collection of scrap electronics and recycling.

Promoting Recycling's Economic Impact

Commerce continues to promote the valuable economic impact that the recycling and reuse industry has on the state, as shown by the 2001 Indiana Recycling Economic Information (IN REI) Study. As communities and businesses seek ways to cut costs, and job creation is a nationwide concern, Commerce emphasizes that investing in recycling and reuse programs and businesses bring revenue, jobs and down-stream economic benefits to the state. Unlike landfilling material, where the economic benefits end when the material is buried, recycling or reusing the material allows it to continue to circulate in the market, generating new jobs, sales revenue and tax revenue for the state.

The United States Environmental Protection Agency continues to promote the National Recycling Economic Information Study (U.S. REI) as well. In the coming year, it is expected that preliminary work will begin on a second round of REI studies in order to understand how the recycling and reuse industry has changed over the past few years.

Public Education and Marketing

The Energy and Recycling Office continues to work with the public and private sectors to increase awareness about waste reduction, reuse and recycling as well as to provide information about financial and technical assistance tools available through the Office. During fiscal year 2003 – 2004, the Energy and Recycling Office continued to widely distribute the existing marketing material, both via mail,

email and the Recycling Program's website. In addition, the 12 Commerce regional offices help disseminate program information to their local communities. As part of an ongoing effort to best serve its customers and integrate the Energy and Recycling Office materials into the overall look and feel of other Commerce materials, the Office has worked with an Indiana marketing company to develop a new logo, updated marketing materials and to find ways to better target its audiences in order to encourage maximum use of existing technical and financial assistance tools.

The Energy and Recycling Office's staff has presented and exhibited information at many conferences, workshops and meetings, including the Association of Indiana Solid Waste Management Districts annual conference, the annual Indiana Recycling Coalition Conference, Earth Day, and America Recycles Day. The Energy and Recycling Office will continue to promote its financial and technical assistance programs as well as the Indiana REI Study through marketing and attending industry meetings.

Priorities for Market Development

The Energy and Recycling Office continues to emphasize building markets for materials that do not currently have strong markets in Indiana and that often make up a significant portion of the waste stream. Priority recyclables include those that have few markets, are difficult to recycle or are high-volume materials that, if recycled, can significantly impact the waste-diversion rate. Some materials are difficult to recycle because they have a low market value and cannot be shipped great distances. Others are prioritized because of rapid industrial and technological advances that have provided new uses for the material. The Energy and Recycling Office places increased emphasis on priority materials in its technical and financial assistance programs.

The priority materials targeted are **computers and electronics, plastics, mixed glass, construction and demolition debris, tires and non-hazardous industrial by-products, including coal combustion materials and foundry sand**. Other materials may also be considered as priority materials on a case-by-case basis. Following is a short discussion on each priority material.

Most loan and grant projects awarded this year focused on these priority materials. The \$1 Million RPAF Attraction/Expansion Loan provides zero-interest loan funding for successful recycled feedstock or product manufacturers that use priority materials to expand in or relocate to Indiana. The Energy and Recycling Office supports businesses that have been successful at creating markets for priority materials. These businesses bring with them new technologies in recycling that can help Indiana expand its markets for these recyclables.

Computers and electronics: Obsolete and discarded computers and electronic equipment are ever increasing. Many of these items are reusable in other organizations or contain reusable components. If the product is unusable, the components may be separated and recycled. This process can be costly and complicated, as materials may contain hazardous substances and must be dealt with in an environmentally sound manner. However, the field is advancing. Commerce supports efforts to keep electronics scrap and any potentially hazardous substances out of Indiana landfills. Recently there has been growing concern about how and where electronics are being reused or recycled and the possible health and environmental risks that may result from inappropriate recycling. There is a growing effort in Indiana and the nation to be sure that these materials are properly handled. Indiana government, private, and non-profit organizations have come together to identify the current electronics scrap management infrastructure in the state and to find ways to improve the handling of electronics scrap. Energy and Recycling Office Recycling Program grants and loans can be applicable to electronic recycling projects.

An example of progress in FY 2003-2004 on this material is a \$100,000 innovations grant to Goldsmith Group, Inc., (GGI) to design and test a system of software and hardware to be used in analyzing, labeling, and sorting electronics scrap (GUS System). The software, in conjunction with Radio Frequency Identification Tags (RFID) will be used to organize and track the inventory to ensure that the material is efficiently handled as either reusable, recyclable, or destined for disposal without the need for multiple evaluation and with solid criteria for categorizing the material as good, unknown, or scrap quality. GGI hopes the system will reduce handling time and costs, help establish criteria to evaluate material's value, and collect statistics about the material handled and how it is handled.

Plastics: The recycling of plastics and manufacturing of products from recycled plastic compounds continues to be a growing area. As more and more products and packages are shifted away from other materials and into plastics, the need for recycling scrap industrial materials and post-consumer discards continues to grow. Indiana's strong automotive parts industry uses and recycles a significant amount of plastic. In addition, recycling technologies have opened a market for plastic and rubber composite material as well as plastic and wood composite material. Several composite material manufacturers in the state are thriving. More recycled plastic processors have also recently opened in the state. As the industry advances, the state is seeing more advanced recycled polymer combinations develop, allowing for a broader range of products to be made from recycled materials. Mixed plastic scrap streams continue to be challenging for manufacturers to use.

A developing realm of plastics recycling involves plastic scrap from electronics casings. The types of plastics used in electronics are widely varied, may be mixed when collected, may be complex polymers, and may contain flame-retardants or hazardous materials. These factors make separating and recycling these plastics challenging, and Indiana is working to find solutions to these issues that would allow for more recycling and remanufacturing of these materials. Nationally, an effort is underway to encourage electronics manufacturers to not only use more easily-recycled plastics in their products, but also to produce them with recycled content and to make products more durable and with replaceable parts.

An example of progress in 2004 on this material is a \$97,000 innovations grant to QTR, Inc., to develop and test new recycled plastic resins that combine polycarbonate and polyester. Currently, similar virgin alloys are used by the automotive industry to manufacture parts. QTR believes that developing a product line of recycled polycarbonate/polyester alloys would cost less than using virgin material and would divert many tons of industrial plastic waste from landfills. QTR will purchase lab testing equipment to develop the compounds, develop products from these compounds, and test these products before commercializing the products.

Mixed glass: Long-term market shifts away from glass and toward other types of containers make recyclable glass difficult to market. In addition, specialized glass wastes, such as automobile window glass, continue to lack strong markets. The Energy and Recycling Office has worked with other government agencies, private businesses, and local governments on projects to encourage civil engineering uses for recycled glass to be piloted. Civil engineering uses may include using glass in asphalt, as fill material, as additives to road paint, as sandblasting material, as decorative landscaping material, and as sand substitute.

Construction and demolition debris (C&D): A significant amount of waste is generated in the construction and demolition of buildings in Indiana. Every year tons of wood waste, asphalt, concrete, brick, shingles, cardboard, wallboard, vinyl siding, carpet scrap, piping and wiring end up in Indiana landfills unnecessarily. Education and business investment is necessary to move this material back into use. Better collection efforts and willingness by recyclers, brokers, and end users to take this material is necessary to increase C&D debris diversion from landfills. These efforts are happening across the state and the interest is growing.

An example of progress in FY 2003-2004 on this material is a \$500,000 RPAF loan to Cable Plastics Reclamation, Inc., a new company that will recycle metal and plastics generated from cable and wire generated by building demolitions. The RPAF project will focus on the plastics recycling. The company seeks equipment to sort, size, ground, separate, pelletize, and bag this recycled plastic for resale (primarily PVC and PE). The mixed plastics will be separated using the HydroGravity system. The company purchased two extruders and pelletizers, capacity of over 30 million lbs. The company's income will come from the sale of three recycled materials: copper, PE, and PVC.

Tires: Approximately six million scrap tires are generated in Indiana every year. Still more tires remain in piles that are targeted for clean up. Finding end-use options for these tires continues to be a challenge. Many tires are still being shredded and landfilled because of the large supply of tires and smaller number of end uses. More industries are needed that successfully recycle and use large quantities of tires. The Energy and Recycling Office has been working with the Indiana Department of Transportation and the Indiana Department of Environmental Management to encourage the use of tire chips in civil engineering projects, both by the State and by local governments and by private business. The Office has also funded several projects that involve the use of tire chips as feedstock for the creation of rubber or rubber composite products, such as automotive parts and flooring material. These products provide value-added end uses for a priority recyclable material.

An example of progress in FY 2003-2004 on this material is a \$500,000 RPAF loan to Envirotech Extrusions, Inc., which produces thermoplastic elastomer sheeting products from recycled rubber and plastic. The company has received two previous RPAF Loans for the creation and expansion of its recycled rubber and plastic sheeting lines. This project is to install the 6th and 7th product extrusion lines, and a construct a 40,000 square foot addition to the existing plant.

Another example of progress in FY 2003-2004 on tire market development is a \$17,520 innovations grant to CCE, Inc., to test the use of recycled tire shreds as aggregate in residential and commercial septic and drainage systems. Two drainage trench bed test sites will be constructed and monitored, and two pilot septic systems will be constructed and monitored using the tire shreds as aggregate. Licensed engineers and laboratories will assist in conducting all necessary tests, including soil and water monitoring, over a one-year period. INDOT, ISDH, IDEM, and local health departments have been contacted and will be involved in the project. A final report, including guidelines for using tire shreds in septic systems, will be generated at the end of the project.

Industrial by-products: Many industries in the state produce both hazardous and non-hazardous, by-products from their production process. These materials can be costly to dispose of and often must be placed in special landfills. There are, however, a number of beneficial reuse opportunities for many of these materials that would allow the producing companies to reduce their disposal costs and keep these materials out of landfills. The paper-producing industry, metals/foundry industry, coal power industry, and cement industry all produce some sort of by-product that can be beneficially reused in some way. Some materials have uses that are approved by state regulatory agencies; others are approved on case-by-case basis. There is an ongoing regional effort, led by the U.S. Environmental Protection Agency Region 5 in Chicago, to bring industry and government together to find ways to safely make it easier for these by-products to be used. The Energy and Recycling Office is currently working on several projects that are researching and testing new ways to use these materials. Foundry sand, coal combustion by-products and cement kiln dust are largely the focus of these projects.

An example of progress in 2004 on these materials is a \$99,333 innovations grant to Holcim Inc. to partner with the University of Notre Dame, and the Indiana Department of Transportation (INDOT) to test the use of ground granulated blast-furnace slag (GGBFS) as an admixture for improving soil. The GGBFS tested will be generated at the US Steel Gary Works plant in Indiana. Approximately 120 different combinations of soil and GGBFS will be evaluated for improved soil properties. Laboratory assessments of macroscopic and microscopic properties of slag/soil mixtures will be performed at the University of Notre Dame. Holcim will partner with INDOT to conduct field tests with successful slag/soil combinations. The results of this testing will product guidelines for developing optimal soil conditions using GGBFS as a soil amendment, therefore opening the market for this beneficial reuse of slag waste. Additionally, several projects have been proposed in 2004 that if funded would further reuse large volumes of electric arc furnace dust and other byproducts from Indiana steel mills, and spent sand from Indiana foundries.

Financial Assistance

The Energy and Recycling Office offers financial assistance to encourage reduction, reuse and recycling, as well as the use and manufacture of recycled-content products and industrial feedstocks. The Office's financial programs are administered through the Recycling Promotion and Assistance Fund established to promote and assist recycling throughout Indiana by focusing economic development efforts on businesses and projects involving recycling. The fund is administered by the Recycling and Energy Development Board, a legislatively defined board that consists of 13 members from various related industry sectors, Indiana universities, and private citizens (IC 4-23-5.5).

Financial tools available through the Energy and Recycling Office's Recycling Program include the following:

Loans

Recycling Promotion and Assistance Fund (RPAF) Loan
\$1 Million RPAF Attraction Loan

Grants

Innovations Grant
Recycled Product Marketing Grant
Recycled-Content Purchasing Grant
Three R's Assessment

All project applications receive rigorous review by the internal Recycling Program Review Team. Projects must meet specific program requirements as defined in approved guidelines. Loans are reviewed for financial, technical and business planning details. Projects that meet the required criteria are taken to the Recycling and Energy Development Board (REDB) for funding consideration. The REDB closely reviews applications for loans and grants, and approves or denies funding and any subsequent project changes. All approved projects must also meet the contingencies that the REDB places upon them and must remain in good standing with the Indiana Departments of Revenue, Environmental Management, Workforce Development, and Natural Resources to receive funds.

Loans and grants are monitored by ERO staff. Loan projects receive several site visits: one before consideration by the REDB, one early in the implementation phase, and at least one annually through the life of the loan (seven years). Grant applicants may also receive site visits, depending on the size of the grant and length of the project.

Every year a number of approved projects do not receive funding because they are not able to meet the contingencies placed upon them by the REDB or because their business plan cannot be implemented as expected and the project does not move forward. Occasionally, businesses that received funding are moved or closed for reasons unrelated to the REDB project.

Loans to Indiana Businesses: Equipment Purchases to Facilitate Recycling

Three loan projects were approved in fiscal year 2003 – 2004, totaling \$1,035,330, and leveraging \$10,586,250 in private investment. These projects will divert more than 34,600 tons of material from disposal, create 70 new jobs, and save energy.

Loan funds are available through two programs:

- **Recycling Promotion and Assistance Fund (RPAF):** The cornerstone of the Recycling Program's financial tools continues to be the RPAF. This economic development tool provides zero-percent interest loan financing up to \$500,000 on the purchase of equipment that is used to reduce waste generated, prepare material for use as an industrial feedstock or make recycled-content products. The loans require a one-to-one match.
- **\$1 Million RPAF Attraction Loan:** This loan provides up to \$1 million in zero-percent interest loan financing on equipment purchases to successful businesses expanding their markets for priority materials. This level of funding is an economic development tool that can attract successful businesses to expand in Indiana. Recycling businesses and technologies have been developing around the world for the past 10 to 15 years. As these companies expand, Indiana is in a prime location to capitalize on their successes. Indiana is centrally located to many cities and industries, boasts an expansive transportation system, and has a strong existing industrial recycling infrastructure. The \$1 Million RPAF Attraction Loan projects are lower risk and have a high recycling return because they provide markets for hard to recycle materials.

Since the program began in 1991, over 64 loans have been awarded. These are leveraging over \$122,736,000 in private funds, diverting over 1.5 million tons of waste from landfills and creating approximately 330 new jobs for Indiana. There are currently 27 active RPAF Loans totaling over \$8,099,890.

Loans Approved in Fiscal Year 2003 – 2004:

Cable Plastics Reclaiming, Inc. (Indianapolis, IN): Awarded \$500,000 loan for equipment to sort, size grind, separate, pelletize, and bag plastic for resale. Cable Plastics Reclaiming is a new company that will recycle metal and plastics generated from cable and wire "choppers". The mixed plastics will be separated using the Hydro Gravity system. This project leveraged an additional private investment of \$6.3 million.

Eagle Metal Abrasives, Inc. (Tippecanoe, IN): Awarded \$500,000 loan for assistance with the startup of a new facility on a reclaimed brownfield in Marshall County that will recycled scrap steel into steel "shot". The shot is used in industrial cleaning applications. This project leveraged an additional private investment of \$3.3 million.

Firestone Industrial Products, Inc., (Noblesville, IN): Awarded \$35,330 loan for purchase of a rubber shredder that will allow the company to recycle scrap rubber from its manufacturing process back into new product. The company manufactures air springs for truck and heavy-duty vehicles. Rubber

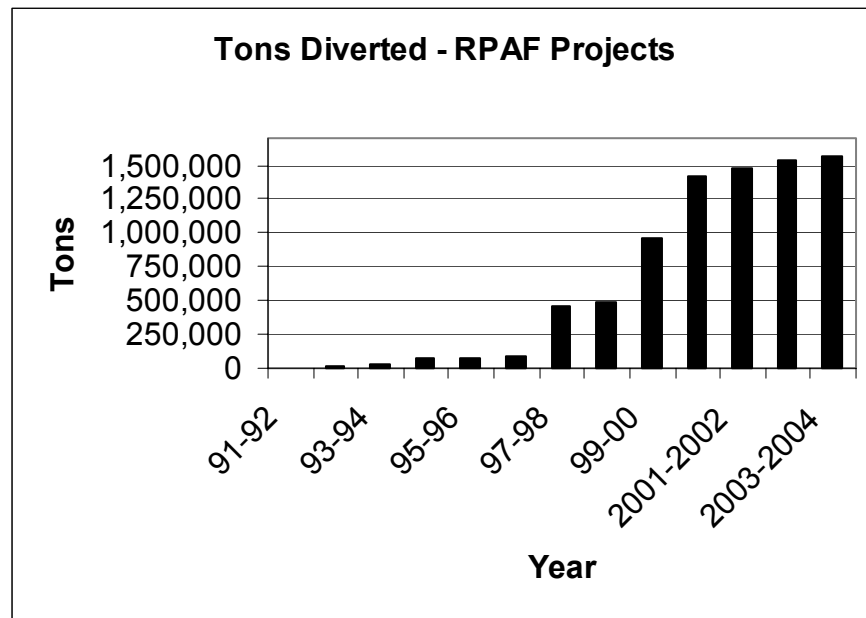
bumpers are part of these air springs and contain uncured fibrous rubber. Firestone seeks to reduce the waste created by the manufacture of these bumpers by purchasing a specialized rubber shredder that will process the rubber cut-off and reincorporate this material into the bumper manufacturing process. This project leveraged an additional private investment of \$35,330.

Table 1: Companies with Active* RPAF Loan-Funded Projects

Loan Recipient	County	Loan Approval Amount	Material Recycled Annually (projected)	New or Retained Jobs (projected)	Materials Recycled
Fiscal Year 2003-2004					
Cable Plastics					
Reclaiming, Inc.	Marion	\$500,000	16,500 tons	25 new	plastics, metal
Eagle Metal Abrasives, Inc.	Marshall	\$500,000	18,000 tons	45 new	steel
Firestone Industrial Products, Inc.	Hamilton	\$35,330	175 tons	0	rubber
Fiscal Year 2002-2003					
GreenCycle of Indiana, Inc.	Boone	\$80,000	21,000 tons	3	pallets, brush
American Recycling a Manufacturing, Inc.	Vigo	\$119,497	4,550 tons	10	pallets
G&S Metal Consultants, Inc.	Wabash	\$600,000	36,000 tons	10	aluminum
Anco Products, Inc.	Elkhart	\$165,000	2,000 tons	3	fibrous glass
Fiscal Year 2001-2002					
Dekalb Molded Plastics, Inc.	DeKalb	\$475,000	1,225 tons	12 new	rubber, plastic
G&S Metal Consultants, Inc.	Wabash	\$388,000	42,000 tons	5 new	aluminum
GDC, Inc.	Elkhart	\$455,833	460 tons	9 new	rubber
Max Katz Bag Company, Inc.	Marion	\$500,000	700 tons	11 new	plastic, film
Fiscal Year 2000-2001					
Anco Products, Inc.	Elkhart	\$225,623.20	2,000 tons	4 new	fibrous glass
Envirotech Extrusions, Inc.	Wayne	\$563,000	2,100 tons	22 new	rubber, plastics
GE Plastics & Rubber, LLC	Marion	\$323,000	6,500 tons	13 new	rubber, plastic
GreenCycle of Indiana, Inc.	Marion	\$202,150	9,832 tons	2 new	wood
Harris Material Exchange, Inc.	Adams	\$225,000	29,000 tons	8 new	plastics
Lake County Transfer, Inc.	Lake	\$202,274	26,060 tons	3 new	wood and vegetable scrap
OmniSource Corp.	Allen	\$352,168	5,200 tons	4 new	aluminum, steel
Fiscal Year 1998-1999					
VIM Recycling Inc.	Elkhart	\$416,000	35,000 tons	5 new	wood
Fiscal Year 1997-98					
G-P Gypsum Corporation	Jasper	\$500,000	350,000 tons	65 new	synthetic gypsum
Harris Material Exchange, Inc.	Adams	\$150,000	17,000 tons	20 new, 11 retained	plastic
Fiscal Year 1996-97					
HT Aluminum Specialties, Inc.	LaPorte	\$209,165	4,000 tons	10 new	aluminum
Max Katz Bag Co., Inc.	Marion	\$500,000	1,000 tons	56 retained	plastic
Fiscal Year 1995-96					
Envirotech Extrusions, Inc.	Wayne	\$479,000	4,000 tons	32 new, 31 retained	crumb rubber & plastic
Fiscal Year 1994-95					
Industrial Pallet Corp. - American Fibertech	Tippecanoe	\$165,000	16,300 tons	16 new	wood
Fiscal Year 1992-93					
Tree Pro	Tippecanoe	\$75,000	103 tons	10 new	plastic

*Active projects are those that have been approved and are currently conducting the loan project or have conducted the project and are repaying the loan.

Figure 1. Projected Annual Tons of Recyclables Diverted from Disposal as a Result of Approved RPAF Loan Projects



Grants to Encourage Innovation in Waste Reduction and Buying Recycled

The Recycling Promotion and Assistance Fund Grant Program encourages Indiana businesses, manufacturers and local government entities to find new ways to reduce waste and increase recycling and the use of recyclables. Companies in all sectors, from manufacturing to retail, can make a positive impact on reducing the amount of material going to landfills. Since its inception in 2000, the Grant Program has assisted 96 businesses and local government entities by granting \$1,270,513 to assist in assessing their waste streams, developing innovative uses for secondary materials, marketing recycled-content products produced in Indiana, purchasing recycled-content products and developing new markets for these products. More than 60 communities around the state have directly benefited from these grants. In FY 2003-2004, 17 grant projects were approved totaling \$207,344. All grants require a one-to-one funding match.

Types of grants available include:

- The **3R's Grant** provides funds (up to \$6,000) to companies to carry out recycling audits of facilities to determine what is in the waste stream and investigate more efficient operating procedures that will reduce waste and/or increase the use of recycled materials.
- The **Innovations Grant** funds research and development projects (up to \$100,000) on products or processes that reduce waste or utilize a recyclable material.

- The **Recycled Product Marketing Grant** provides funds (up to \$30,000) to recycled-content product manufacturers for the development or implementation of a marketing campaign to promote use of the product.
- The **Recycled Product Purchasing Grant** provides grants (up to \$5,000) to local Indiana government entities for the purchase of recycled-content products as a trial or demonstration. The products serve as educational tools for the public and the government entity.

Recycling Market Development Program Grants Approved Fiscal Year 2003-2004

Innovations Grants

(Awards of up to \$100,000)

<u>Organization Name</u>	<u>County</u>	<u>Amount</u>	<u>Innovations Project Description</u>
CCE, Inc.	Clarke	\$17,520	Tire chips for septic system drainage
Goldsmith Group	Marion	\$100,000	Automated sorting of e-scrap

Recycled Product Purchasing Grants

(Awards of up to \$5,000)

<u>Organization Name</u>	<u>County</u>	<u>Amount</u>	<u>Recycled-Content Product(s)</u>
Black Township Fire and Rescue	Posey	\$1,116	Recycled plastic cribbing
City of Crown Point	Lake	\$5,000	Recycled plastic playground borders
City of Evansville, Parks Dept.	Vanderburgh	\$1,735	Recycled plastic decking
Lowell Parks Department	Lake	\$5,000	Recycled-content playground equipment
Southeast Fountain School Corporation	Fountain	\$4,921	Recycled-content picnic tables and waste receptacles
St. Joseph County Parks	St. Joseph	\$633	Recycled-content golf set and recycling bins
Bloomington Tnshp. Dept. of Fire and Emerg. Svs.	Monroe	\$558	Recycled plastic cribbing
Cass County Solid Waste Management District	Cass	\$4,100	Recycled-content picnic tables
Clinton Central Elementary	Clinton	\$1,379	Recycled plastic benches and tables
Delphi/Ti-Township Fire Department	Carroll	\$1,796	Recycled plastic cribbing
Marrs Township Volunteer Fire Dept.	Posey	\$1,050	Recycled plastic cribbing
Ripley County Dept. of Parks and Rec.	Ripley	\$2,011	Aluminum and plastic recycling stations
Topeka Volunteer Fire Dept.	LaGrange	\$525	Recycled plastic cribbing

Recycled Product Marketing Grants
(Awards of up to \$30,000)

<u>Organization Name</u>	<u>County</u>	<u>Amount</u>	<u>Description</u>
Terra Green Ceramics, Inc.	Wayne	\$30,000	New marketing materials for recycled ceramic flooring
T.B.R. USA, Inc.	Porter	\$30,000	New marketing materials for recycled truck cap

Examining the Benefits of Recycling

Indiana continues to realize the benefits of recycling at keeping valuable natural resources out of landfills and reducing the need to extract new resources for the creation of new products. The Indiana Department of Commerce's Energy and Recycling Office acknowledges the economic benefits of recycling and reuse to the state and works to create jobs and economic growth through the Recycling Market Development Program. The Office also recognizes that waste reduction, recycling and reuse decrease energy consumption and the GHG emissions associated with global warming that result from this consumption. These benefits also bring downstream economic, and environmental benefits to Indiana. Studies and newly developed tools allow us to more fully understand these benefits and allow the Energy and Recycling Office to promote investment in recycling for these reasons.

Economic Impact of Recycling and Reuse in Indiana

In conjunction with the National Recycling Coalition and R.W. Beck, Inc., the Indiana Department of Commerce completed a study of the impact of the recycling and reuse industry on Indiana's economy. The study shows that recycling is working in Indiana – the state has a strong recycling and reuse industry that provides a significant number of jobs and substantial economic activity to Hoosiers. IDOC hopes to update these numbers in the coming year.

According to the Recycling Economic Information Study, completed in 2001 and based on 1999 data, the reuse and recycling industry in Indiana

- includes 1,700 establishments;
- employs approximately 75,000 people;
- has a payroll of approximately \$3 billion; and
- has annual revenues of \$19 billion.

The recycling and reuse industry companies are involved in metals, paper, plastics, glass, organic materials, computers and electronics, tires and other post-consumer and post-industrial scrap. Jobs in this industry involve collection, processing, reuse, remanufacturing, sales, and more.

The size of Indiana's recycling manufacturing sector far exceeds the recycling collection, processing and reuse sectors. The collections and processing sectors make up a smaller portion of total employment, but have the very important job of providing feedstock material into the manufacturing and reuse sectors. The recycling manufacturing sector covers a wide range of industries, including metal casters, plastics manufacturers and automobile parts manufacturers. Indiana's recycling manufacturing sector is strong and well diversified. There are local markets for many of the recyclables generated by households as well as the commercial and industrial sectors in Indiana. Recycling of scrap materials feeds directly into building Indiana jobs. Local level public and private investments in collection and processing of recyclables, and public policies favoring recycling and reuse, are supporting larger private-sector investments in downstream processing and manufacturing.

According to the study, the recycling manufacturing sector in Indiana

- accounts for 63,000 jobs;
- \$2.8 billion in payroll;
- \$16.8 billion in receipts;
- consists of the highest paying jobs in the recycling and reuse industry; and
- provides 92 percent of Indiana's total recycling and reuse industry tax revenues

Many of our industrial sectors have such a high demand for recovered materials that a significant amount of material is purchased and imported from other states and countries — to Indiana's benefit. Many of these industries' products support other manufacturing jobs in the state or bring profits into the state from the sale of those products outside Indiana's borders. Indiana's economy significantly benefits from this industrial sector in terms of the jobs it provides, the support it gives to the state's manufacturing base and other economic sectors and the tax revenues that flow to the state and local governments.

Midwest as a Leader in Recycling Business Activity

The Mid-America Council of Recycling Officials, a non-profit regional organization of recycling officials of which Commerce is a member, in cooperation with U.S. EPA Region 5, combined data from 14 member states' Recycling Economic Impact studies in order to examine the size and impact of the recycling industry in the Midwestern region of the United States. These data were compared with national REI Study data to determine what impact, as a percentage, the Midwestern recycling industry had on the national recycling industry. The results show that the Midwest is a leader in recycling business activity, and is a great location for the development of recycling businesses and the development of recycling technologies.

The data show that the Midwestern recycling industry contributes

- 33 percent of the total national recycling industry jobs;
- 35 percent of the total national recycling industry wages;
- 20 percent of the total national recycling industry establishments; and
- 35 percent of the total national recycling industry sales.

Efforts to encourage the public and private sectors to expand recycling and reuse assist in supporting and raising this significant economic activity.

This study of the recycling and reuse industry has been conducted around the nation and in sponsoring states. The methodology for the study was developed and tested by the National Recycling Coalition and the U.S. Environmental Protection Agency, with contract assistance from R.W. Beck. The industry includes 26 industry categories. Data come from existing data (census), survey data and economic modeling. This methodology was peer reviewed and is comparable to similar studies of other industries.

Direct results provide information on the number of establishments in this industry as well as its employment, wages, revenues and throughput (as available). Indirect effects were estimated for the

impact of additional economic activity accruing to establishments that provide goods or services to the recycling and reuse industry. Induced effects were estimated for economic activity from workers spending personal earnings on goods and services. Multipliers were identified for jobs, personal income, industrial output and value added.

For more information about this study or to obtain a copy of the Indiana Recycling Economic Information Study fact sheet, contact the Energy and Recycling Office at (317) 232-8940.

Energy Savings and Greenhouse Gas Reductions From Recycling

Waste reduction and recycling saves energy by eliminating the need to use natural resources and extract virgin materials. Solid waste disposal is a business and community expense. Developing feedstocks from recycled materials saves energy in the manufacturing process; limits energy consumption from extracting virgin materials; and promotes business opportunities, employment and technology innovation. It reduces the need for landfill disposal and thereby decreases landfill methane emissions. Reducing the initial consumption of natural resources and reusing materials provides the greatest amount of reduction of GHG emissions.

The U.S. EPA has developed a tool that allows users to calculate the global warming effects from various solid waste management practices. This tool, the **Waste Reduction Model**, calculates and totals GHG emissions of baseline and alternative waste management practices—source reduction, recycling, combustion, composting and landfilling. The model calculates in metric tons of carbon equivalent (MTCE), metric tons of carbon dioxide equivalent (MTCO₂E), and energy units (million BTU) across a wide range of material types that compose municipal solid waste.

Materials that account for over 64 percent of national Municipal Solid Waste are those that can most easily be recycled or composted, including aluminum cans, steel cans, glass, HDPE, LDPE and PET plastics, corrugated cardboard, magazines, newspapers, office paper, phone books, textbooks, lumber, fiberboard, food, and yard trimmings. Reducing demand for and use of these products as well as using recycled feedstocks in the production of similar products can decrease the need for raw materials, thus decreasing the accompanying energy use and GHG emissions.

In addition to providing tools to calculate energy and emissions savings from recycling and waste reduction, the U.S. EPA's Climate and Waste Program is developing a new Manufacturing and Purchasing Greenhouse Gas (MAP-GHG) tool that allows users to calculate the GHG benefits of using recycled inputs in the materials they manufacture and/or purchase. This tool is currently being finalized, and will help show another benefit of manufacturing and purchasing recycled-content products.

For more background on EPA's analysis of climate change and waste management, see the EPA report entitled: Solid Waste Management and Greenhouse Gases: A Life-Cycle Assessment of Greenhouse Gas Emissions and Sinks, available at:
<http://yosemite.epa.gov/oar/globalwarming.nsf/content/ActionsWasteToolsReports.html>.

Encouraging waste reduction, reuse, recycling and more efficient manufacturing processes can help significantly lower energy consumption and GHG emissions in Indiana. In addition to using recycled

materials in the manufacturing process, encouraging energy-efficient and clean manufacturing strategies will also help achieve this goal. Encouraging product redesign to involve less energy use and less waste production should be involved in creating more efficient manufacturing processes. The Energy and Recycling Office programs provide financial and technical assistance to help Indiana businesses take on these improvements.

Markets for Recyclables in Indiana

Recyclables are materials in commodities in the markets and thus are impacted by the global marketplace. Some recyclable materials are shipped throughout Indiana, across the United States and around the world. Indiana's strong industrial sector provides markets in Indiana for much of our household and industrial recyclables.

Similar to other commodities, market prices for recyclable materials fluctuate because of changes in product demand petroleum prices and local, national and international economic situations. Periodically, certain materials have enjoyed a high market value, but generally recycling end uses are built on stable low prices. Pricing can influence the amount of material diverted from landfills. It is important to continue to build demand for products that contain recycled materials in an effort to strengthen the secondary commodity markets. Local markets for recyclables reduce transportation costs and pollution and often prove to be more reliable markets.

In fiscal year 2003 – 2004 market values for several commodities crept up slightly or remained steady. The following sections discuss the market situation for each of the commonly collected recyclables.

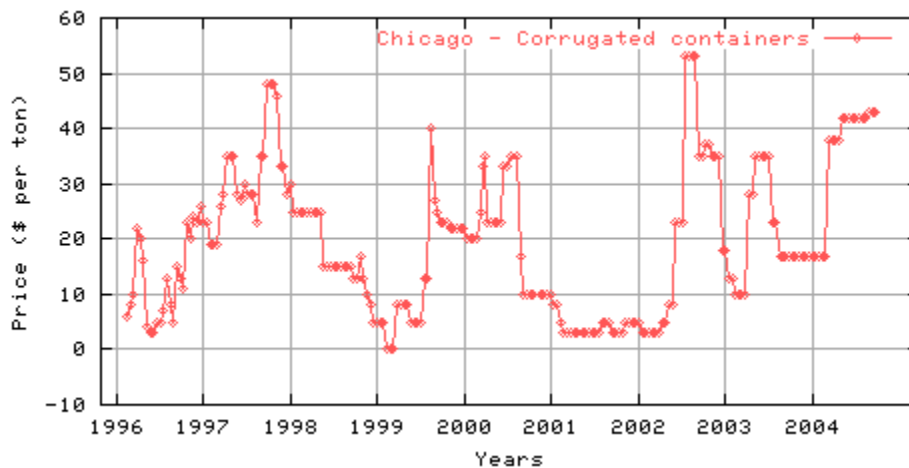
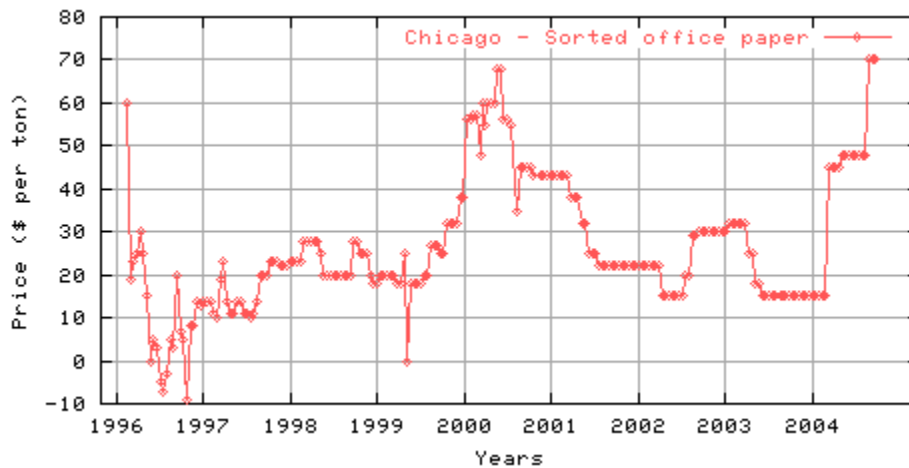
Commodity Price Market Summaries for Fiscal Year 2003 - 2004

Commodity	Low	High
PAPER		
News 6	\$10	\$20
Corrugated	\$15	\$45
Residential Mixed	\$0	\$0
Sorted Office	\$10	\$70
METALS		
Steel Cans	\$40	\$150
White Goods	\$40	\$150
Aluminum Cans	\$25	\$40
GLASS		
Flint Glass	\$15	\$30
Amber Glass	\$5	\$15
Green Glass	\$0	\$0
PLASTIC		
PET	\$200	\$380
Natural HDPE	\$320	\$460
Colored HDPE	\$220	\$320
RUBBER		
Tires	-\$95	-\$75

All prices based on per ton cost. Source of table and following commodity graphics:
WasteNews (www.wastenews.com)

Paper

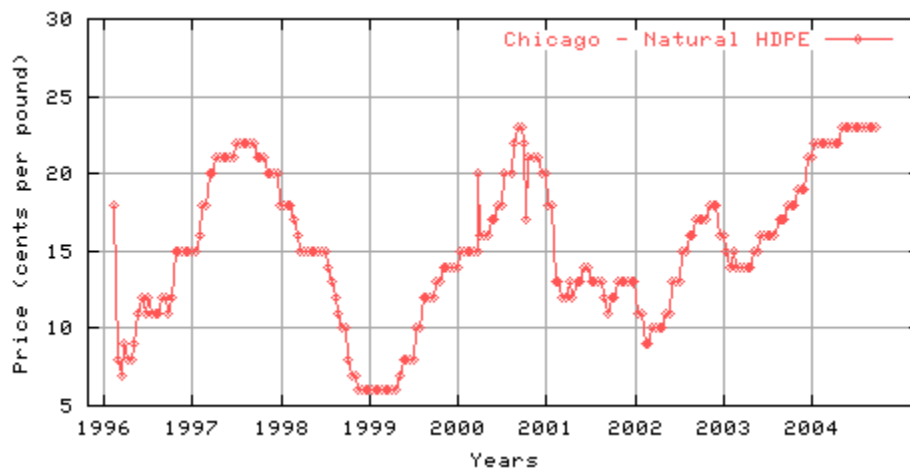
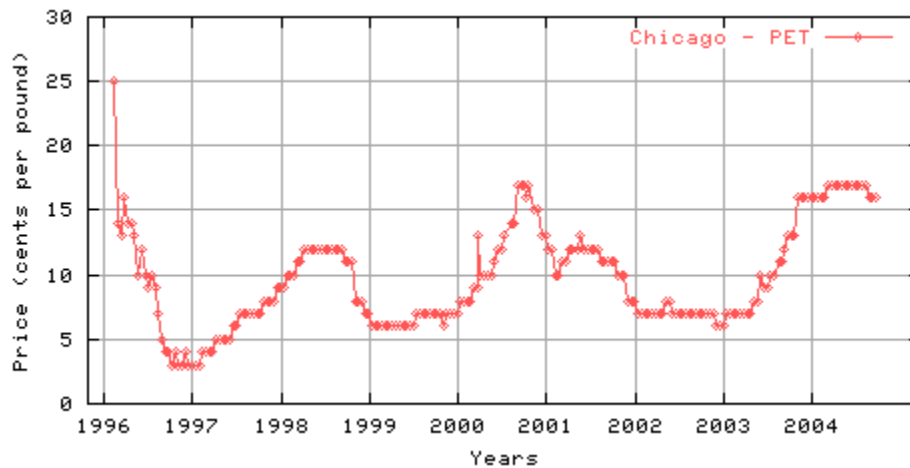
Domestic paper markets, have improved or remained stable in FY 2003-2004. Mills have become more competitive and are purchasing material at higher prices. Export markets continue to provide additional opportunities. Sorted office paper prices have increased dramatically since last year, and remain well above the historic average. Mixed residential paper pricing remains flat. Corrugated dropped from last fiscal year, but remains above its historic average price. Newsprint #6 prices rose by about 50 percent over last fiscal year, and show continued strength.



Plastics

Export demand and petroleum costs have increased in FY 2003 – 2004, which has helped prices to rise. Plastics also continue to increase in market share in the beverage container industry. On the Polyethylene Terphthalate (PET) side, the main challenge for the plastics industry is increasing the amount of recovered PET collected as increased demand continues to rise. The PET recycling rate has actually dropped recently, at the same time that major PET bottle manufacturers are increasing the amount of recycled-content in their products. Prices for High Density Polyethylene rose in 2003 and have leveled off in 2004.

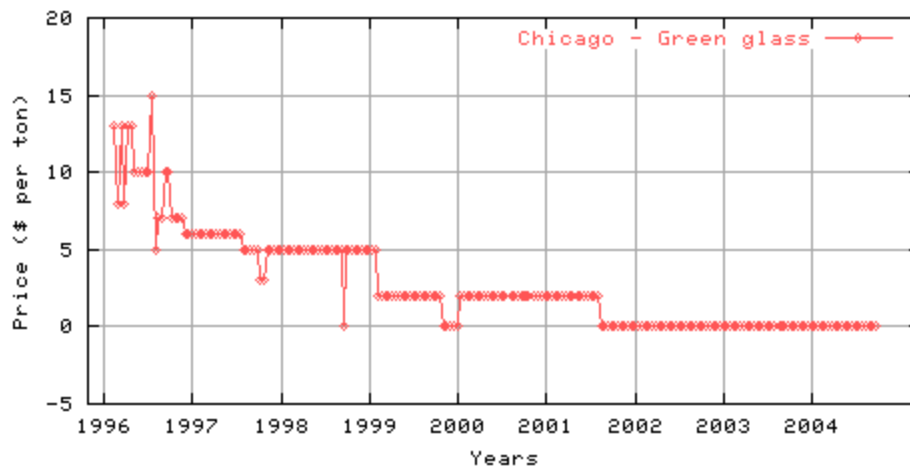
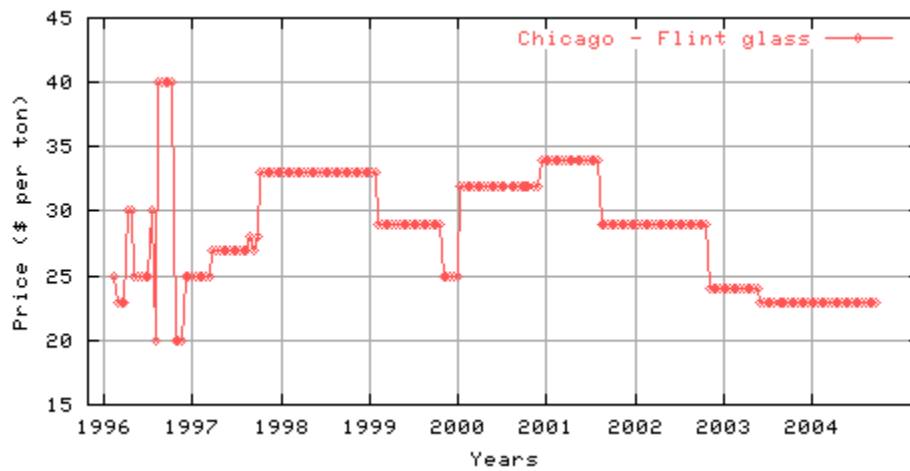
Plastics:



Glass

Prices for clear, green and amber glass held steady at historically low levels. The number of domestic glass container manufacturers has dropped sharply in the past 20 years, thus reducing the market for container glass. Low demand, high handling and processing costs, and lack of strong end markets for the glass has made the material less profitable for municipalities and companies alike to recycle, though there are significant energy benefits to using recycled glass in the manufacturing process. Another issue of concern to potential glass recyclers is contamination from single-stream recycling. As the use of glass in container manufacturing decreases, new alternative end markets continue to be developed in order to create an end use for glass scrap. These include use of glass cullet in road construction, for decorative landscaping, and as sand substitute.

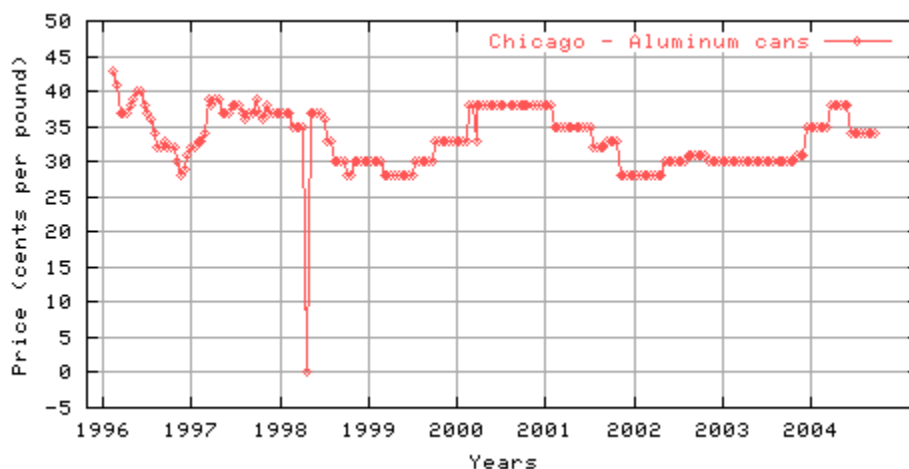
Glass:



Aluminum

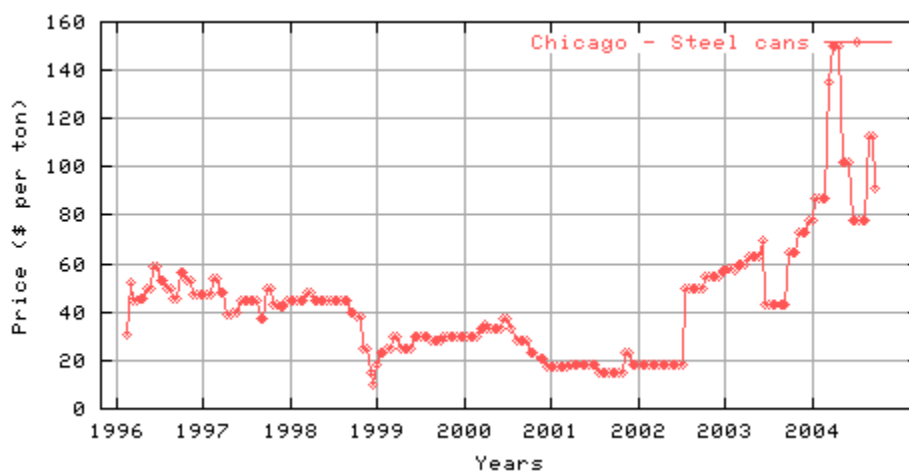
The average price for aluminum scrap fluctuated slightly in FY 2003 – 2004, but remains within its eight-year range. A rise in price occurred in the first quarter of 2004 partly due to the fact that reduced scrap generation is leading to competition. Export demand for scrap is also high. This competition for scrap, however, has kept profit margins tight as it becomes less cost effective to collect, sort, and purify scrap. Aluminum continues to face competition from plastic, however, in the area of beverage containers.

Aluminum:



Ferrous and Other Metals

Ferrous scrap prices experienced large fluctuations in FY 2003-2004, but seem to be stabilizing at the \$90-\$110 per ton range. The current range is still well above its eight-year average. In February, prices soared to heights seldom reached by the secondary commodity, spurred by fierce competition between Asian and North American buyers of scrap metal. Some consumers who are also generators have reacted by attempting to make arrangements to keep some of their scrap in a closed corporate loop.



Wood Scrap and Pallets

In FY 2003 – 2004, the wood scrap and pallet industry continued to face market development challenges. Indiana is home to more than 1,000 wood scrap producers, whose scrap from sawmills, furniture factories, construction, home maintenance and other facilities creates a significant part of the state's waste stream. Pallets and crates are used by nearly every Indiana manufacturer as well as many retailers. There are several existing Indiana companies that can recycle scrap wood by using it for rebuilding pallets, mulching, composting, creating particle board, creating animal bedding or as a feedstock in plastic composite lumber. There are not enough of these operations in the State, however, to successfully divert the large amount of wood waste that is landfilled or incinerated each year in

Indiana. Continued work to expand these markets and create successful wood recycling infrastructures is needed to decrease this waste stream in Indiana.

Construction and Demolition Debris

Construction and demolition (C&D) debris continues to be a significant part of Indiana's waste stream. The United States Environmental Protection Agency estimates that in 1996, more than 136 million tons of building-generated C&D debris was generated by both the commercial and residential sectors. Main C&D components are gypsum wallboard, wood, vinyl siding, carpet, piping, wiring, glass, brick, stone, asphalt and metals. While many of these components can be and are being easily recycled, the majority is still being landfilled. Wide swings in commodity prices and marketability sometimes affect the C&D scrap streams. Contamination from lead-based paint remains a concern as well. Significant work on collection strategies and development of successful end-markets is needed in order to decrease the amount of C&D debris going to Indiana landfills. With the momentum in the Green Building movement both nationally and in Indiana, and with continuing developments in technology related to C&D recycling, Commerce will continue to sponsor projects that will advance C&D markets.

Industrial Solid Waste By-Products

Several industries produce large amounts of single non-hazardous solid waste streams. These industrial by-products include coal combustion materials, foundry sand, cement kiln dust, slag, and other substances. These materials often have the potential for beneficial reuse as aggregate, fill, or raw material for a manufacturing process. An effort is underway in the Midwest to bring industry and government sectors together to discuss how to overcome barriers to and increase the occurrences of beneficial reuse of these materials. The Energy and Recycling Office continues to fund projects that help develop markets for industrial by-products in Indiana in order to divert this material from landfills and keep it circulating in the commodity market.

Coal Combustion Materials

Indiana consumes over 70 million tons of coal annually, according to the United States Department of Energy. Coal combustion by-products present a waste management concern to both solid waste officials and state utilities. These materials, such as fly ash and bottom ash, can be used as aggregate for many types of projects, including cement manufacturing, road base and sub-base construction, and structural fill construction. Markets for coal combustion projects continue to develop as possible uses are tested and proved. Other markets for this material should be explored, and potential end-users should be educated on the acceptable uses.

Foundry Sand

More than 120 foundries in Indiana use sand in their casting processes. This sand is either disposed of in landfills or reused. Nationwide, over 100 million tons of foundry sand is used and reused annually. As Indiana's foundries strive to become more efficient and competitive, they look to reduce the amount of sand they must acquire and dispose. Redesign of the casting process and improved sand reclamation technologies have allowed many foundries to reduce the amount of sand disposed. Many foundries look for ways to reuse their spent sand. Foundry sand has been proven for use in road sub-base, grout and mortar, construction fill, cement manufacturing, flowable fill, highway barriers, landfill daily cover, and pipe bedding applications. Finding and proving alternative uses in Indiana will help lower disposal costs for Indiana foundries and allow them to be more competitive. The Energy and

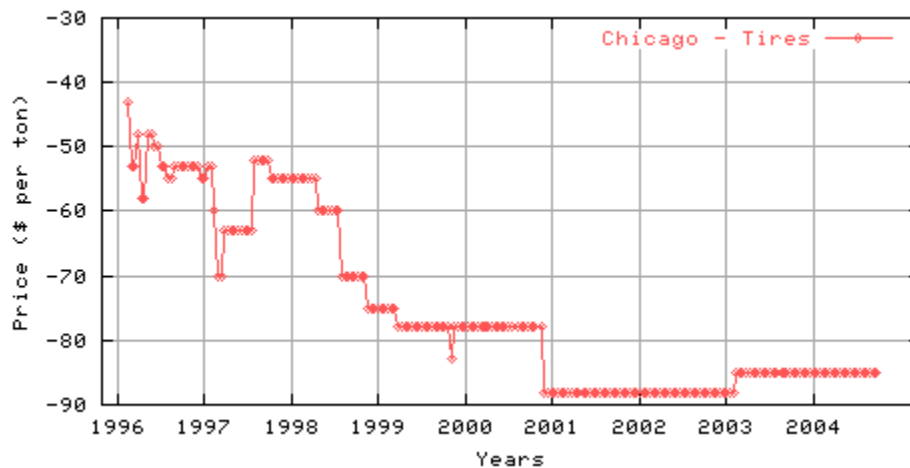
Recycling Office has funded two research projects that are studying new ways to reuse and recycle foundry sand.

Tires and Rubber

Scrap tires continue to be a major solid waste issue in Indiana. The scrap tire market continues to be driven more on supply than demand. As was evident with the large tire fire at the CR3 tire recycling facility in Muncie, Ind., tire processors and end-users must take care to balance their on-hand supply with product demand in order to remain safely within regulatory compliance. This event also demonstrated the need for the state to develop more viable end-markets for tires. An estimated 6 million scrap tires are produced every year in Indiana, with still more sitting in existing tire piles. Prices have stayed low this year.

While scrap tires may be recycled into rubber-based products and used in civil engineering projects, some of the available markets have not taken hold in Indiana. Other uses that constitute large end markets in other states - including the use of tire shreds in septic and drainage systems and as tire derived fuel - still need to be proven in Indiana in order to open these potentially large markets in the state. State agencies continue to participate in pilot projects to use tires in civil engineering projects, such as with road construction and septic systems. The Energy and Recycling Office has several ongoing projects involving the use of crumb rubber from scrap tires as feedstock to create recycled-rubber products, such as sheeting and automotive parts.

Until these markets mature in Indiana, a negative price will be associated with this commodity. (That is, at the present time, those who hold scrap tires must pay approved processors to accept this material). The negative price is due to storage, processing and disposal regulations for waste tires.



Partnerships and Cooperative Assistance

The Energy and Recycling Office works with local, state and national partners to assist in waste reduction and recycling market development. Through these connections we ensure that Commerce programs reflect state priorities and meet the needs of market development. Some of these partners include the following:

Indiana Department of Commerce

- Economic Development Division
- Office of Community Assistance
- Office of the Ombudsman
- Regional Offices

Indiana Department of Environmental Management

- Office of Pollution Prevention and Technical Assistance
- Office of Land Quality

Indiana Department of Administration

- Greening the Government Program

Indiana Department of Transportation

- Materials and Tests Division

Indiana Local Economic Development Organizations

Indiana Solid Waste Management Districts

Indiana Recycling Coalition

Mid-America Council of Recycling Officials

National Recycling Coalition

United States Environmental Protection Agency (Region 5)

Scrap Tire Management Council

Foundry Industry Recycling Starts Today

Various industry associations

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Economic Development Division

Main Phone: (317) 232-8800

Office of Community Assistance

Main Phone: (317) 232-8911